

Past kidney disease may increase preeclampsia risk, impair blood vessel health during pregnancy

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A history of kidney problems may put people at a higher risk for impaired blood vessel function, which could lead to high blood pressure,

preterm labor and other adverse outcomes, according to the results of a study in rats. The researchers will present their work this week at the American Physiological Society (APS) and American Society for Nephrology [Control of Renal Function in Health and Disease conference](#) in Charlottesville, Virginia.

Acute kidney injury (AKI) is a sudden loss of kidney function that can occur for a wide range of reasons, including excessive fluid loss from diarrhea or vomiting, [kidney stones](#), antibiotic use, cancer treatment and congestive heart failure. Complications during pregnancy, including postpartum hemorrhaging, can lead to AKI.

During a healthy pregnancy, the vascular system adapts to handle the increased blood flow that occurs. The [blood vessels](#) are able to dilate more and reduce blood pressure. Endothelial dysfunction—an impairment of the innermost layer of cells that line the blood vessels—contributes to [high blood pressure](#) in pregnancy, a condition called preeclampsia. The kidneys also adapt during pregnancy to help filter the additional blood volume. But in people who are pregnant and have had prior AKI or a history of kidney disease, the kidneys may not be able to handle the additional stress. This inability to adapt may also increase the risk of preeclampsia and preterm labor.

Researchers from Augusta University in Georgia studied a rat model of post-AKI pregnancy. They found that kidney injury prior to pregnancy—even after a full recovery—caused higher levels of kidney inflammation, impaired endothelial function and dysregulation of the renin angiotensin system, a hormone system that regulates blood pressure.

"Prior kidney disease history results in a form of subclinical injury that remains masked, but upon pregnancy as a second stressor, the complications start to be revealed. Therefore, it is important for people

to know their baseline kidney function as well as past kidney function history before getting pregnant and even during pregnancy," said Desmond Moronge, RPh, first author of the study. "Our preclinical evidence indicates that history of an AKI should be considered a risk factor contributing to prenatal care regimens."

Provided by American Physiological Society

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